

# Hydrogen powered car leaves Bristol for Arkansas

November 2 2010, Michael Owens

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Professor Cliff Ricketts preferred the fuel efficiency of a 1994 Toyota Tercel when compared to other used cars. That's why he gutted its gas tank and fuel lines in favor of water tanks and solar cells.

On Monday morning, the Middle Tennessee State University professor of agribusiness and agriscience started from Bristol on a roughly 550-mile trip to West Memphis, Ark., without a single drop of gas. Powering the car instead was the hydrogen extracted from the water by the solar energy.

"I wanted to show that we had a system in place, in the case of an energy crisis, that every commuter in the country could drive just fine and dandy," Ricketts said.

His goal was to complete the journey with only a single pit stop to refuel. That stop was 287 miles down the road in Murfreesboro, Tenn., where a makeshift service station of pressurization tanks and water awaited.

Tailing the professor in a van was 2008 John S. Battle High School alum Nick Booher, who monitored the jury-rigged Tercel's computer readouts. He is in Ricketts' alternative fuels class.

"It's pretty neat that we're ... burning hydrogen, basically, in a gas motor," he said.

Booher, an animal science major at Middle Tennessee, usually relies on

holidays to time his return home. This time, it was a class project that reunited him with his parents for the weekend.

"I'm not sure why (Ricketts) picked Bristol to start," Booher said. "It was just a convenient place for me and him, I guess."

It's not the first time someone has powered a car with water, Ricketts said. And it's not the first trip in a car fitted with solar cells. But it might be the first time both energy sources have been combined under the same hood, the professor said.

Past versions of Ricketts' alternative fuel experiments include engines run on ethanol, soy bean oil, solar power, and each energy source, including gas, at once.

Alongside the converted pickup trucks and Toyota are a few 1970s-model Corvettes.

"The pickup truck really doesn't grab that much attention like the Corvettes do," Ricketts said.

Converting the Tercel cost roughly \$4,500. But Ricketts estimated the price would drop dramatically if produced on an assembly line and sold on the mass market.

Ricketts, when asked about the chemical conversion process in the Tercel, discussed cascading systems, electrolysis units, and hydrogen pressurized at thousands of pounds per square inch, all done during a 10-minute stop.

Roughly translated, it means the sunlight filtering through the [solar cells](#) squeeze enough energy from the hydrogen to drive all day, while at the same time storing enough reserve power to continue through the dark of

night.

Retired mechanical engineer and [hydrogen](#) power cell expert Joe Borck, who trailed behind in the van with Booher, retrofitted the Tercel with the water tanks and fuel lines.

"The only noticeable difference ... is we took out the back seat for the tanks," Borck said.

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Citation: Hydrogen powered car leaves Bristol for Arkansas (2010, November 2) retrieved 4 May 2024 from <https://phys.org/news/2010-11-hydrogen-powered-car-bristol-arkansas.html>

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